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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,516	09/09/2003	Brian Kilmartin	2003P00139US01	1786

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EXAMINER

LU, TONY W

ART UNIT	PAPER NUMBER
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2878

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary

Application No.

10/658,516

Applicant(s)

KILMARTIN, BRIAN

Examiner

Tony Lu

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-67 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-67 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09/09/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

Note there appears a missing claim number 18. Claim numbers from 19-68 will be renumbered and refer to 18-67 hereinafter.

Claims 2,3,12,13,20,23,31,41,42,47,48,51,52,54 and 61 are objected to because of the following informalities:

As for claim 2, on line 2, "and" should be changed to "or".

As for claim 3, on line 1, "and" should be changed to "or".

As for claims 12 and 13, the antecedent basis of "the receiver apparatus" is unclear.

As for claim 20, the antecedent basis of "the stress bearing member" is unclear.

As for claim 23, on line 2, "and" should be changed to "or".

As for claim 31, on line 1, the antecedent basis of "the receiver" is unclear.

As for claim 41, on line 2, "and" should be changed to "or".

As for claim 42, on line 1, "and" should be changed to "or".

As for claims 47 and 48, the antecedent basis of "the transmitter" is unclear.

As for claims 51 and 52, the antecedent basis of "the receiver apparatus" is unclear.

As for claim 54, the antecedent basis of "the stress" is unclear.

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As for claim 61, on line 2, "and" should be changed to "or".

Appropriate corrections are required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 7 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The intended usage of a fiber optic sleeve as a waveguide, in the specification page 6, lines 9-20 "uses a fiber optic sleeve 150 as an optical waveguide 110" on specification page 6, directed to figure 4 and claim 7, is unclear as how the light would be transmitted when the fiber optic sleeve is coaxially wrapped about the structural. It is also unclear whether the fiber or the cladding/sleeve of the fiber being wrapped around the structure element. Clarification and correction are required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 7, 8 and 11-16, as understood by examiner, are rejected under 35 U.S.C. 102(b) as being anticipated by Wilk US4788868.

With respect to claims 1-4,7,8,11,12 and 13, Wilk discloses a strain measurement system for sensing deflection in a structural element, comprising: a structural element(14, cylindrical shaft); waveguides which are fiber optic cables(50a, 50b) wrapped around the structural element in a fixed relative position; a transmitter(22, a laser, which is a visible frequency wave, a photonic wave, and/or an electromagnetic radiation wave.) that emits a transmitted signal from the first end of the waveguides and receiving apparatus(24) in communication with the waveguide for sensing a transmitted signal existing through a second end of the waveguide; and a sensing apparatus(26, signal processor) for correlating sensed modulated signal with a deflection of the structural element.

With respect to claim 14, per the above discussion, Wilk discloses a deformable structural element which can be affected by strain created by a selected movement at the one end of the structural element(col.1).

With respect to claim 15, per the above discussion, Wilk discloses the selected movement of an end of the structural element comprises a torque(col.3-4, and fig.2-3).

With respect to claim 16, per the above discussion, Wilk disclose an optical interference pattern resulting from light emanating from an exit end of each of the waveguides(col1. and col.2). Any deformations of the waveguides would have altered the refraction angle of the waveguide and further cause a different optical interference pattern.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5,6,9,10 and 17-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilk US4788868.

With respect to claims 5 and 6, per the above discussion, Wilk discloses the waveguide comprises fiber optic cables(50a,50b) wrapped around the structural element in a helix configuration or wrap the fiber optic cables helically around the inside surface of the structural element at an angle of 45°(col.11), but lacks a clear teaching of the fiber optic cables been wrapped around the structural element at 45°. Selecting a specific manner of wrapping the fiber optics cables around the structural element would have been obvious to one of ordinary skill in the optics art in order to provide a desired wrapping configuration of the waveguides.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Wilk accordingly in order to provide a more accurate detection of the deformation of the structural element.

With respect to claims 9 and 10, per the above discussion, Wilk fails to teach using an LED source as the transmitter.

Although Wilk lacks a clear inclusion of an LED source, the use of a known and available LED would have been obvious to one of ordinary skill in the electric art in order to provide a power saving light source.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Wilk by replacing the laser transmitter with an LED source in order to provide a desired light source for the system.

The further citations of a current source and an analog oscillator would have been inherently included, because any optical light source should include a current supply source, and the oscillator should have been needed for providing a pulsed laser beam, however, if not, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the proposed system of Wilk accordingly in order to provide more control to the light source.

With respect to claims 17 and 18, per the above discussion, Wilk fails to disclose the transmitted signal is measured by a chromatic dispersion, lost modes, and spectral spreading.

Although Wilk lacks a clear teaching of the transmitted signal is measured by a chromatic dispersion, lost modes, and spectral spreading, selecting a specific way to measure the transmitted signal would have been obvious to one of ordinary skill in the optics art in order to provide a better detecting result.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Wilk accordingly in order to provide a more accurate measurement of the transmitted signal.

Regarding claim 18, although Wilk lacks an inclusion of an attenuation measurement of the light outputted at the one end of the waveguide, it would have been inherently included, however, if not, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Wilk accordingly in order to provide a precise degree or level of the deformation of the structural element.

With respect to claims 19 and 20, Wilk discloses that the waveguides are adhered to the structural element, but fails to teach the waveguide been attached to the structural element by using mechanical fasteners, component embedding or molding, and using standoffs.

Although Wilk lacks a clear teaching of using mechanical fasteners, component embedding or molding, and using standoffs, selecting a specific method of bonding two elements together would have been obvious to one of ordinary skill in order to provide a better bonding formation of the elements.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Wilk accordingly in order to provide a better bonding formation between the waveguide and the structural element. The further citations in claim 20 would have been obvious for similar reasons set forth above.

With respect to claims 21,22,23,26, 29,30,31,32,33,34 and 39, per the above discussion, although Wilk lacks a clear inclusion of the strain measurement system is in a vehicle, the inclusion of applying the torque sensor in a vehicle is considered an intended use statement thus carrying no patentable weight since whether or not the

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inclusion of the "vehicle" in the preamble of the claimed invention would not change the basis performance of the system.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Wilk accordingly in order to provide a wider application environment for the torque sensor without altering the basic performance of the system.

With respect to claims 24 and 25, per the above discussion, the further citations of the claim would have been obvious for similar reasons set forth in claim discussion 5 and 6 above.

With respect to claims 27 and 28, per the above discussion, the further citations of the claim would have been obvious for similar reasons set forth in claim discussion 9 and 10 above.

With respect to claims 35 and 36, per the above discussion, the further citations of the claim would have been obvious for similar reasons set forth in claim discussion 17 and 18 above.

With respect to claims 37 and 38, per the above discussion, the further citations of the claim would have been obvious for similar reasons set forth in claim discussion 19 and 20 above.

The proposed system of Wilk inherently performs the claimed method of claims 40-59 and 60-67.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1) Griffiths US 4654520 discloses a laser, a detector, a signal processing electronics, a fiber optic cable and a stress bearing structural element.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Lu whose telephone number is 5712728448. The examiner can normally be reached on M-F 9:00am- 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Davide Porta can be reached on 5712722444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Handwritten signature of Tony Lu, with the initials 'TL' written below the first part of the signature.Handwritten signature of Davide Porta.

DAVID PORTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800